

IM3080 Design and Innovation Project (AY2023/24 Semester x)

Individual Report

Name: Edmerson Low Soon Xiang

Group No: 5

Project Title: CLUTCH

Contributions to the Project (1 page)

I contributed mostly to the backend team and very small part to everyone.

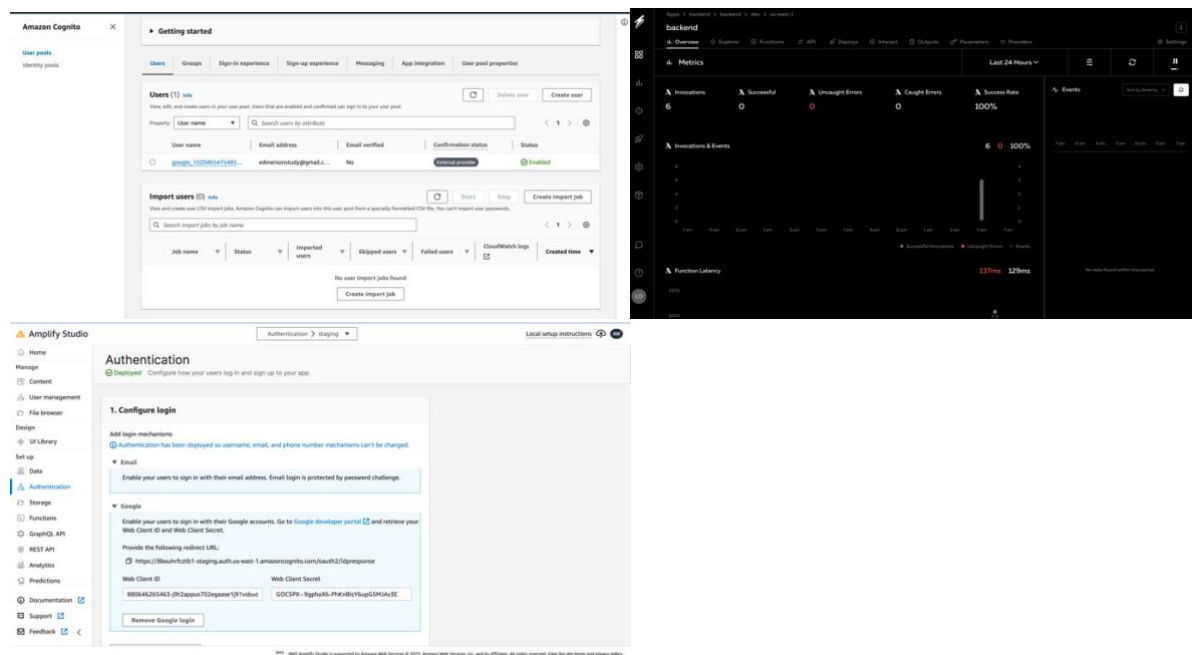
In the very beginning, I created the folder structure for the project and I also assisted our backend team with the database schema contributed the design of the database, and did a crash course on git for everyone.

For the design team, I did also assisted one of the design team to revamp the navbar to look more appealing and modern.

I used AWS Amplify to create a login system that supports both basic and Google OAuth sign-in.

I also created a real-time feature using WebSockets, I also work with serverless APIs, aiming for flexibility so that during integration can directly fetch the data from an end-point API. I also integrated the API with the Database in the deployment.

I mostly did the CD (continuous deployment).



Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to at least two of the points below:

- (a) Engineering knowledge
- (b) Problem Analysis
- (c) Investigation
- (d) Design/development of Solutions
- (e) Modern Tool Usage
- (f) The Engineer and Society
- (g) Environment and Sustainability
- (h) Ethics
- (i) Individual and Team Work
- (j) Communication
- (k) Project Management and Finance
- (l) Lifelong Learning

Point 1: Engineering Knowledge & Modern Tool Usage

During this project, I deepened my understanding of backend engineering, focusing on databases, APIs, cloud services, and communication protocols. My role in the Design and Innovation Project (DIP) required not just theoretical knowledge but also practical application of modern tools such as serverless APIs and cloud computing platforms. The project's demands led me to a hands-on experience with AWS Amplify for authentication, implementing secure sign-in processes, and integrating Google OAuth. This experience with cloud-based services and understanding of serverless architecture broadened my technical skill set. This also taught me to be careful as AWS imposes charges if there's more than the rate limit that's set which helped me to be careful for the security. These competencies became particularly beneficial during my PI interview. This experience affirmed the practical value of the DIP in equipping me with the necessary skills and knowledge to not only complete the project successfully but also to excel in professional endeavors beyond the academic environment. As a backend engineer and devops in this project, I'm having quite significant of fun and learning in this project and I look forward to transferring this skills to my PI next semester!

Point 2: Investigation & Development of Solutions

The initial stages of the project were smooth, but midway, I faced significant hurdles requiring a reevaluation and overhaul of some backend components and database. Serverless can't use the web sockets and the other way around and to handle authentication to populate a different set of databases in real-time server also dotenv file was pushed to github. This period was challenging for me as it tested my problem-solving abilities and communication skills. My focus was to diagnose the issues, facilitate clear discussions among team members, and execute the necessary changes to our codebase. The experience reinforced the importance of adaptability and the ability to dissect complex problems into manageable parts. At the end I managed to do it solved it with the backend team. These skills were crucial in navigating the project's technical challenges and ensuring our backend systems were robust and efficient. It was a testament to the value of a methodical approach to problem-solving in engineering.